

REMARKS

Applicants, their principal representatives in Germany, and the undersigned have carefully reviewed the first Office Action on the merits of April 1, 2008 in the subject U.S. patent application, together with the prior art cited and relied on in the rejections of the claims. In response, the claims of the application have been amended in an effort to more clearly patentably define the subject invention over the prior art cited and relied on. The claims not selected for prosecution in the subject application have been cancelled. Applicants again expressly reserve the right to file one or more divisional patent applications directed to these now cancelled claims. Reexamination and reconsideration of the subject application, and allowance of the claims is respectfully requested.

The subject application is directed to a device for processing a web in a web processing machine, such as a web-fed rotary printing press. The overall web-fed rotary printing press is seen in Fig. 9 of the drawings filed with the application. Webs of paper, in the form of rolls, are supported by roll stands, as seen generally at 64 on the left side of the web processing machine or rotary printing press. The web or webs have a width that is dependent, to some extent on the type of finished product that is to be produced, and that also is dependent on the widths of the various press components. The web or webs are printed by the several printing units 63 and are then directed to a superstructure 67. They are then longitudinally slit by a longitudinal cutting arrangement 71 into partial webs which are turned or shifted laterally by a turning device 72 and are passed down over a longitudinal fold former 73 and are then folded and cross folded. Each particular printing job is apt to have its own size characteristics and the initial web must be longitudinally sliced or separated, partial webs have to be superimposed by the use of various turning bars and the now superimposed partial webs have to be longitudinally formed before they can be cut into signatures and cross folded.

In the subject invention, the several longitudinal fold formers are supported for lateral movement in a suitable frame, as may be seen generally in Fig. 1a. A drive mechanism 11 is

usable to shift the longitudinal fold formers laterally under the influence of a control unit 10. One or more longitudinal web slitters are provided and can divide the printed webs into several partial webs. A suitable arrangement of longitudinal cutters is depicted in Fig. 3a. These cutters are supported by a carriage 27 that can be shifted laterally by the use of a drive motor 34. Suitable web turning bars are depicted, for example, at 37 in Fig. 4a. Each web turning bar is usable to turn a web through 90° with respect to its original travel direction. Two staggered turning bars can shift a web or a partial web laterally so that it is superimposed above another similar web or partial web. The turning bars 37 are shiftable by a suitable motor 49, as seen in Fig. 4a.

In accordance with the present invention, as is depicted in Fig. 9, and as is discussed in several portions of the substitute specification, the positioning of the longitudinal cutters, turning bars and longitudinal fold formers are determined as a function of the operation of a common control system, as is depicted in Fig. 9 at S or 10. The information which is used in the common control system S or 10 is a value that can be received from a product planning system, from a unit preparation stage, from the press operator himself or from other print preparation data that is supplied to the control system S or 10 immediately before the operation of the web processing device.

In the course of the preparation of the subject Amendment, the Substitute Specification was reviewed. That review noted the existence of several minor typographical errors. Those several minor errors are being corrected by this Amendment. Their correction does not constitute any new matter. Their entry is respectfully requested.

In the Office Action of April 1, 2008, the Group 11 claims, claims 135 and 172, were included in the Group 1 claims. Applicants appreciate this inclusion by the Examiner. Claims 137-152 and 173-207 have now been cancelled from this application in favor of a divisional patent application to possibly be filed in the future.

The drawings were objected to as failing to show all of the features recited in the claims. Specifically, it was asserted that the paddle wheel of claim 162 and the gluing device of claim 163 are not shown in the drawings. In response, these two claims have been cancelled. The cancellation of these two claims renders the Examiner's objections to the drawings moot.

Claims 134-136, 153-157, 164, 166, 168-170 and 172 were rejected under 35 USC 103(a) as being unpatentable over DE 100 03 025 to Hartmann in view of GB 2171084 to Hank. It is noted that U.S. patent No. 6,712,749 is an English language equivalent to DE 100 03 025. Both the DE 100 03 025 document and U.S. patent No. 6,712,749 recite two inventors, Horst Bernhard Michalik and Manfred Wolfgang Hartmann. Inventor Michalik is the first listed inventor in both documents. For ease of discussion, the U.S. equivalent patent No. 6,712,749 will be referred to as the Hartmann reference in the following discussion.

Claim 156 was rejected under 35 USC 103(a) over Hartmann in view of Hank and further in view of U.S. published patent application No. 2003/0071162 to Moser. Claims 159-161 were rejected under 35 USC 103(a) as being unpatentable over Hartmann in view of Hank and further in view of U.S. patent No. 4,848,632 to Mack. Claim 162 was rejected under 35 USC 103(a) as being unpatentable over Hartmann in view of Hank and further in view of U.S. patent No. 6,358,192 to Michalik. Claim 163 was rejected under 35 USC 103(a) as being unpatentable over Hartmann in view of Hank and further in view of U.S. patent No. 4,795,451 to Buckley. Claim 165 was rejected under 35 USC 103(a) as being unpatentable over Hartmann in view of Hank and further in view of U.S. patent No. 5,707,054 to Loquet. Claim 167 was rejected under 35 USC 103(a) as being unpatentable over Hartmann in view of Hank and further in view of U.S. patent No. 5,263,414 to Lehrieder. Claim 171 was rejected under 35 USC 103(a) as being unpatentable over Hartmann in view of Hank and further in view of U.S. patent No. 6,139,003 to Michalik.

Referring initially to the rejection of claims 134 and 135, the two independent claims now pending in the subject application, the following comments are believed to be relevant. The

"Hoffmann" reference; i.e. U.S. patent No. 6,712,749 was cited as showing a first and a second web cutter at 47. While that is correct, it is to be noted that those cutters 47 are situated at the hopper roller 37 and cooperate with that hopper roller 37 to slit the longitudinal webs 3 and 4 as they are entering the two spaced longitudinal folding devices 13 and 14.

The discussion of the Hartmann reference sets forth, at page 4 of the Detailed Action, that there is provided a cutting arrangement drive mechanism at 47. In fact, element 47 is a work cylinder whose purpose is to pivot a lever 42, 44 about a shaft 41 with the purpose of placing the longitudinal cutting disk 47 either into or out of engagement with the webs 3 and 4. That is not the same as the cutter drive recited in claims 134 and 135, whose purpose is to shift the cutter or cutters laterally with respect to a direction of travel of the webs being cut. It is to be noted that the shaft 41, which supports the cutter 47, is carried by a holder 39. That holder 39 is secured to one of the frames 11; 12 of each former 13 or 14, as may be seen in both of Figs. 1 and 2. The result is that the cutter 47 has to shift laterally with the longitudinal former 13 or 14 to which it is attached. If the former 13; 14 does not move, the cutter 47 cannot move transversely to the web travel direction.

The former drive mechanism 56 of Hartmann, as cited in the Office Action, is usable to rotate a threaded spindle 53 which is connected to an upper carriage 26. That upper carriage 26 is slidably supported by a lower carriage 21. The lower carriage 21 is shiftable transversely to the direction of web travel. The upper carriage 26, which is the one moved by the drive motor 56 of Hartmann, as cited in the Office Action, moves in the axial direction of the folding rollers 27 and 28; i.e. into and out of the paper, as seen in Fig. 1, or to the left and right, as seen in Fig. 2. Both claims 134 and 135 recite that the former drive mechanism is used to move the former transversely to the direction of web travel.

In the Office Action, it is asserted that there are provided first and second web formers 27 and 28, that are located after the web cutter. In fact, as discussed above, the web formers are the elements 13 and 14. As is well known in the art, web formers, such as the formers 13

and 14, are used to form a longitudinal web. Once that web has been formed with a longitudinally extending crease, it passes between the two folding rollers 27 and 28. They turn the crease into a fold line. However, they are not the web formers. The web cutter 47 is located at the top of each of the longitudinal web formers 13 and 14. Typically, this cutter 47 is actually a perforating device which does not cut the web into two partial webs. Instead, it forms perforations along the crease line to assist the folding rollers 27 and 28 to make a sharper fold.

It was acknowledged in the Office Action that the Hartmann reference does not show or disclose a turning bar unit located before the former. Hartmann also does not disclose a drive mechanism for the turning bar. Further, Hartmann does not show or suggest a control device in functional connection with the former drive mechanism and with the turning bar drive mechanism. The secondary reference to Hank is relied on to show such features.

The UK patent application No. 2, 171,084 to Hank is directed to the provision of a turning bar arrangement in conjunction with a linear or longitudinal register cylinder. As seen in Fig. 1 of Hank, the web 3 or partial web 1 is shifted laterally by being fed around a first, fixed turning rod 1, a fixed deflecting roller 3 and a second, movable turning rod. Once the web has been shifted laterally, it runs over a longitudinal register roller 7, which is movable, back around a fixed deflecting cylinder 10 and then continues along its intended path of travel. Since the longitudinal register roller 7 is shiftable toward and away from the fixed deflecting roller 10, the longitudinal register of the web, after it has been shifted laterally by the several turning bars, can be corrected.

There is no disclosure of a former in the Hank reference. The drive mechanism 5 is a drive motor that is usable to shift one end of the displaceable turning rod 4. There is provided a motor 8 for the longitudinally shiftable roller 7. A regulating drive 11 is used to set the position of the longitudinal register roller 7 in response to the movement of the displaceable turning bar 4. This regulating device 11 is usable to regulate a longitudinal edge position of the web. If the displaceable roller is not properly positioned, the paths of travel of the two webs 1 and 1' will not

be parallel. This will result in a displacement of the web edge at the longitudinal register roller 7. The regulating equipment 11 corrects for such a shift by being sure that the shifted web is still parallel to the web prior to its being shifted.

The web processing device, as recited in both of currently amended claims 134 and 135 is not rendered obvious by the combination of the Hartmann and Hank. Initially, it is to be noted that Hartmann does not show, or discuss the provision of a web cutter or a longitudinal cutting apparatus before the web former. At Column 3, lines 28-31 of Hartmann, there is a discussion of the division of a paper web width "b" having been cut into two longitudinal web segments, at a longitudinal center line 16, by the use of a longitudinal cutting device, which is not specifically disclosed. It is to such a web cutter or web cutting device, as depicted in Figs. 3a and 3b that claims 134 and 135 are directed. Claim 134 specifically recites the provision of a turning bar unit between the web cutter and the web former. Claim 135 recites that the former is located after, in the web travel path, the longitudinal cutting arrangement.

In the Hartmann device, the web cutter relied on by the Examiner; i.e. cutters 47, are located at the inlet end of the longitudinal fold formers 13 and 14. It would not be possible to interpose a turning bar arrangement, such as the one in the Hank device, between the web cutter and the web former. If the only peripherally mentioned longitudinal cutting device of Column 3, lines 28-31 of Hartmann is cited by the Examiner as now being the cutting device he is relying on, there is no discussion, or evidence of the inclusion, in that device, of any kind of a web cutter drive mechanism which is adapted to move the cutter transversely.

Both of claims 134 and 135 assert that the drive mechanisms for the web cutter or for the longitudinal cutting arrangement are independent from the web former drive mechanism. Claim 134 further recites that those two drive mechanisms are also separate from the separate drive mechanism for the turning bar. In Hartmann, there is no disclosure of any drive for the web cutter 47 nor is there any discussion of a drive for the only briefly referred to upstream longitudinal web cutting device. Hank only discusses a drive for a turning bar, and its

cooperation with a drive for a longitudinal register roller. There is no teaching of a drive for web cutters and for formers in Hank. The combination of Hartmann and Hank thus does not render obvious the web processing device, as recited in either of currently amended independent claims 134 and 135.

Both claims 134 and 135, as filed, recited the provision of a control device in functional connection with the former drive mechanism and, in the case of claim 135, with the cutter drive mechanism. Claim 134 further recited the connection between that control device and the turning bar drive mechanism. Both of these claims have been amended to change the term "control device" to "control system," which language is in accordance with the terminology used in the Substitute Specification. Claim 134 has been amended to include the cutter drive mechanism as being under the control of the control system. Both of claims 134 and 135 have been amended to now recite that the control system is adapted to control each of the several elements; i.e. the web cutter drive mechanism, the former drive mechanism and the turning bar drive mechanism of claim 134 or the former drive mechanism and the cutting arrangement drive mechanism of claim 135. This control is accomplished in response to print preparation data that is supplied to the control system.

In prior devices, a specific anticipated production for a web processing machine required the entry of a code into the press control. That code was then associated, in the press control, with certain positions of the longitudinal web cutters, the turning bars, if utilized, and of the longitudinal fold former or formers. If the specific production code was entered incorrectly, the press components would not be properly positioned for the production intended. Such an error would result in the incorrect placement of web cutters, turning bars and longitudinal fold formers. Typically, a substantive amount of production would be done incorrectly. Each production of the web processing drive also required the placement into memory of a separate production code. If a new production mode were to be used, the memory had to be programmed to accept and to store the appropriate information.

In the present invention, there is no storing of pre-determined codes in a system memory. Instead, the control system receives raw data from the presetting of the printing press. The Examiner is requested to review the discussion of this at paragraphs 076 and 077 of the Substitute Specification. At the start of a production run, the control system receives data that is relevant to the planned production run. In a print preparation stage, the various sizes and web arrangements of the web to be processed can be fed into the control system. The control system then can control the various drive motors for each of the elements, such as the longitudinal cutters, the turning bars and the longitudinal fold former as a function of the data for the actual production which the web processing drive is about to undertake. There is no need to rely on previously entered codes that are appropriate for only one specific production. Instead, the setting of the printing press at the start of a production run causes the control system to properly position the several components, each of which is provided with a separate drive motor.

Neither of the Hartmann or Hank references have any disclosure or discussion of such a control system, or its use to control the several components of the web processing machine in response to print preparation stage data supplied to the control system. Hartmann has no discussion of any control system. The regulating equipment 11 of Hank is only a coordination of the movement of the longitudinal register cylinder 7 with the positioning of the displaceable turning bar 4. Only the setting motors 5 and 8 for these two elements are included in the regulating equipment 11 of Hank. In a second embodiment, Hank uses a travel sensor 13, which is firmly connected with the turning rod 4, as which is coupled to the input of the control equipment 14 for the setting motor 8 for the positioned displacement of the roller 7. Again, in the Hank device, there is control of only one roller in response to the positioning of the other roller. It is thus clear that the combination of the Hartmann and Hank references does not render obvious the subject invention, as set forth in both of currently amended claims 134 and 135.

Each of the several additional secondary references was cited to show a specific feature of one of the dependent claims. None of them is believed to teach or suggest the features which are missing from the Hartmann and Hank references. While the specific teaching of each of these tertiary references is not contended at this juncture, none of these references is believed to show the features of the subject invention, as set forth in the claims now pending in the application, which are missing from the Hartmann and Hank references.

The several additional prior art references cited by the Examiner in the Office Action of April 1, 2008, but not relied on in the rejections of the claims, have been noted. Since they were not applied against the claims, no further discussion thereof is believed to be necessary.

SUMMARY

Several of the paragraphs of the Substitute Specification have been amended to correct minor typographical errors. Those minor changes do not add any new matter and their entry is respectfully requested. The two independent claims now pending in the application have been amended to more clearly patentably define the subject invention over the cited prior art.

Allowance of the claims and passage of the application to issue is respectfully requested.

Respectfully submitted,

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